State of California

Memorandum

To : Douglas Y. Okumura, Chief
Environmental Monitoring and
Pest Management Branch

Date : March 20, 1998

From : Department of Pesticide Regulation -1020 N Street, Room 16 1
Sacramento, California 95 8 14-5624

Subject: MONITORING RESULTS FROM A SHALLOW TARPED BROADCAST APPLICATION IN MONTEREY COUNTY-METHOD 4/5

Introduction—Methyl bromide is widely used as a preplant soil fumigant for control of nematodes, fungi, diseases and weeds. The Department of Pesticide Regulation (DPR) and county agricultural commissioners have implemented permit conditions, including buffer zones, to mitigate unacceptable methyl bromide exposure. Buffer zone distances are set so that concentrations measured at this distance do not exceed 0.21 parts per million (ppm; 24-hour time-weighted average). The buffer zone distances for the methods have been determined from data received and evaluated by the Department to date. Additional monitoring was conducted to test and evaluate the effectiveness of the buffer zone distances.

Materials and Methods—The fifth application monitored was an 11.8-acre field in the Salinas Valley (Monterey County) treated with methyl bromide by a shallow tarped broadcast application method using high barrier tarpaulin (method 4/5) on November 1, 1997. In this method the area to be fumigated is disced and uncovered before application. The methyl bromide is injected into the soil at a depth between 10 and 15 inches and simultaneously tarped using one piece of equipment. For this application, two application rigs were used, one in each section of the field. The application rate was 360 pounds per acre of formulated product, 57 percent methyl bromide/43 percent chloropicrin. The application took approximately 3 hours.

Ambient air samples were collected at twelve locations using charcoal tubes and SKC air samplers. Eight samplers were located at the residential buffer zone distance, one on each side and each corner, except the north end where a road prevented placement at the buffer zone. Four samplers were located 30 feet

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from the edge of the field, two on the north side and two on the south side. The buffer zone determined for the application was 70 feet. Table 1 and Figure 1 indicate the position of each sampler. A series of five samples was collected at each of the 12 locations beginning with start of fumigation at 06:30. Samples were collected for two 6-hour and three 12-hour periods, for a total of 48 hours.

The weather was mostly clear with some fog during daylight and clear at night with temperatures from 55 to 91 degrees Fahrenheit. Wind speeds ranged from very calm to 23.4 miles per hour with speeds over 7 miles per hour for 55 percent of the time during monitoring. The wind blew predominantly to the northwest during the monitoring period.

Results-Off-site air concentrations did not exceed DPR's target level of 0.21 parts per million (24-hour time weighted average) at the resident buffer zone distance of 70 feet (Table 1). Air concentrations ranged from 0.019 to 0.14 parts per million (24-hour time weighted average) at the 70 foot buffer zone distance. The highest concentrations were detected during the first 12-hour monitoring interval.

If you have any questions, please call me at (916) 324-4297.

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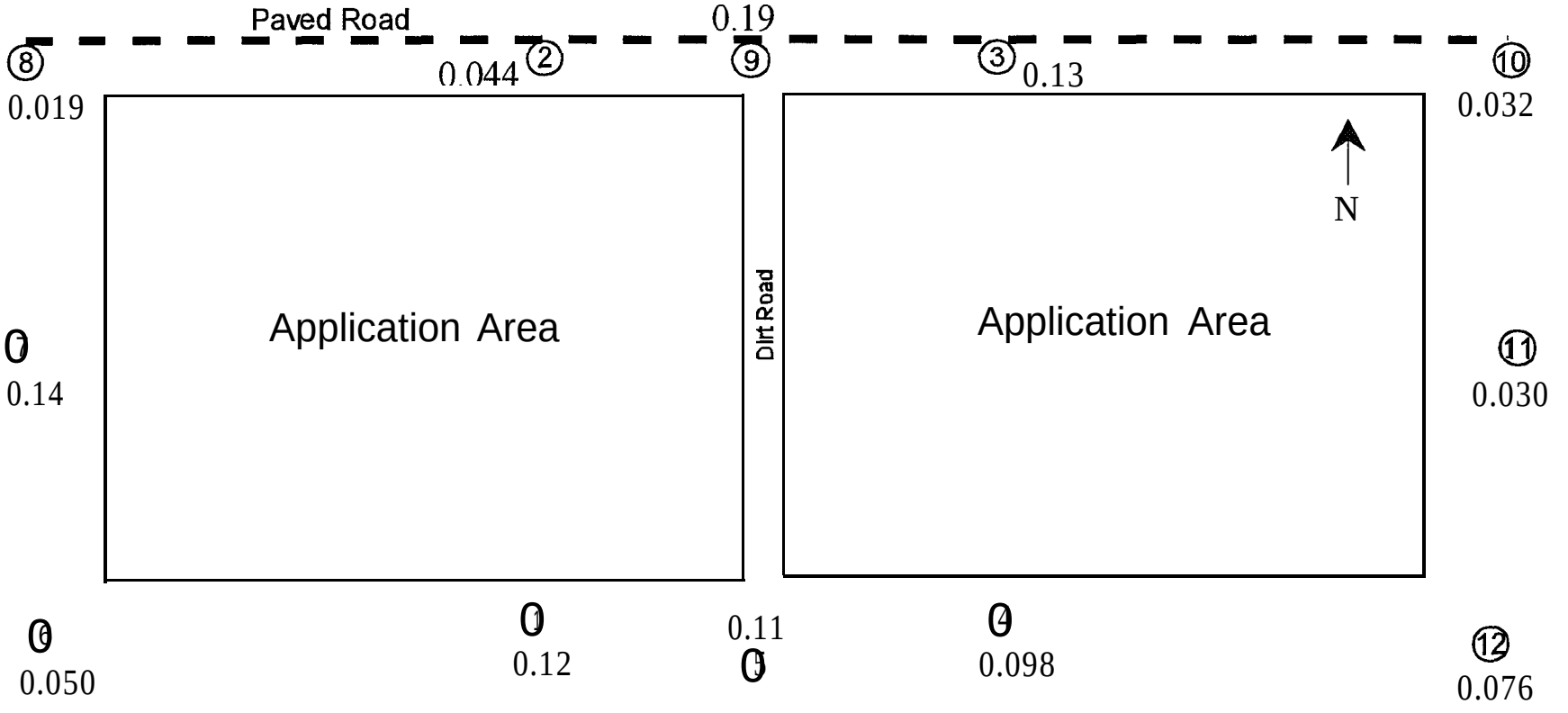
Attachment

Figure 1. The application site, sampling sites and highest 24-hour time weighted averages (parts per million). (* indicates that 24-hour average includes a period of no detectable amount where ½ the detection limit was used to obtain the 24-hour average).



Sites 1 - 4 and 9 are approximately 30 feet from edge of field
Sites 5 - 8 are approximately 70 feet from edge of field

Table 1. Ambient methyl bromide air concentrations.

Sampler Location			Methyl Bromide (ppm) for Each Sampling Period					
Site	Direction	Distance (ft)	**6:30 - 12:30[1] (6 hrs)**	**12:30 - 18:30[1] (6 hrs)**	**18:30 - 6:30[1] (12 hrs)**	6:30 - 12:30 (12 hrs)	12:30 - 6:30 (12 hrs)	24-hr Peak' (24 hrs)
1	south	30	**0.081**	0.248	0.069	0.009	0.017	0.117
2	north	30	**0.103**	0.034	0.019	0.040	0.087	0.044
3	north	30	0.034	0.017	0.236	0.047	0.071	0.131
4	south	30	0.082	0.220	0.044	0.034	0.013	0.098
5	south	70	0.062	0.236	0.071	0.046	0.012	0.110
6	southwest	70	0.014	0.036	0.075	0.012	0.024	0.050
7	west	70	0.018	0.028	0.247	ND[b]	0.076	0.135
8	northwest	72	0.014	0.017	0.022	0.006	0.077	0.019
9	north	30	0.078	0.034	0.317	0.038	0.075	0.187
10	northeast	77	0.028	**ND"**	0.047	0.030	0.008	0.032"
11	east	77	0.034	0.067	0.009	0.037	0.006	0.030
12	southeast	70	0.049	0.154	0.050	0.014	0.008	0.076

[1] the peak 24-hour time-weighted average is derived from the concentrations in bold.

* indicates that 24-hour average includes a period of no detectable amount where ½ the detection limit was used to obtain the 24-hour average.

ND = No detectable amount; "reporting limit = 0.010 ppm [b] reporting limit = 0.005 ppm